Application No. 10/563,811 Amendment dated August 7, 2008

Reply to Office Action of February 7, 2008

## AMENDMENTS TO THE CLAIMS

Docket No.: 5232-0102PUS1

- (currently amended) A nitride semiconductor laser device comprising:
  - a nitride semiconductor substrate;
  - a nitride semiconductor layer that has an n-type semiconductor layer, an active layer and a p-type semiconductor layer laminated on or above the nitride semiconductor substrate, and has a stripe-shaped waveguide region for laser light; and
  - end surface protective films on the both end surface both end surfaces of resonance sandwiching to sandwiching the waveguide region, wherein
  - the nitride semiconductor substrate has a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light,
  - at least one of the end surface protective films has have a higher reflectivity for the wavelength of the luminescent radiation from the luminescent radiation region, and has have a lower reflectivity for the wavelength of the emitted light from the active layer, and wherein
  - at least one of the end surface protective film covers the stripe-shaped waveguide region or an emission-side end surface of resonance.
- 2. (currently amended) The nitride semiconductor laser device according to claim 1, wherein the end surface protective films are located on the end surfaces both on the emission side emissionside and the rear side.
- (canceled)
- 4. (previously presented) The nitride semiconductor laser device according to claim 1, wherein the end surface protective films have a single-layer or multilayer structure.

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5. (currently amended) A nitride semiconductor laser device comprising:

- a nitride semiconductor substrate;
- a nitride semiconductor layer that has an n-type semiconductor layer, an active layer and a p-type semiconductor layer laminated on or above the nitride semiconductor substrate, and has a stripe-shaped waveguide region for laser light; and
- an emission-side end surface protective film and a rear-side end surface protective film opposed thereto on the end surfaces of resonance sandwiching to sandwiching the waveguide region, wherein
- the nitride semiconductor substrate has a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light, and
- the rear-side end surface protective film includes a first end surface protective film having a high higher reflectivity for the wavelength of the luminescent radiation, and a second end surface protective film having a high higher reflectivity for the wavelength of the emitted light from the active layer, wherein
- the emission-side end surface protective film includes a third end surface protective film having a high higher reflectivity for the wavelength of the luminescent radiation and having a lower reflectivity for the wavelength of the emitted light from the active layer, and wherein
- the emission-side end surface protective film covers the stripe-shaped waveguide region or an emission-side end surface of resonance.
- (currently amended) A nitride semiconductor laser device comprising:
  - a nitride semiconductor substrate;
  - a nitride semiconductor layer that has an n-type semiconductor layer, an active layer and a p-type semiconductor layer laminated on or above the nitride semiconductor substrate, and has a stripe-shaped waveguide region for laser light; and
  - an emission-side end surface protective film and a rear-side end surface protective film opposed thereto on the end surfaces of resonance sandwiching the waveguide region, wherein

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the nitride semiconductor substrate has a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light,

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- the rear-side end surface protective film includes a first end surface protective film having a higher reflectivity for the wavelength of the luminescent radiation, and a second end surface protective film having a higher reflectivity for the wavelength of the emitted light from the active layer,
- the emission-side end surface protective film includes a third end surface protective film having a higher reflectivity for the wavelength of the luminescent radiation, and wherein
- the first end surface protective film and/or the third end surface protective film has a low

  lower reflectivity for the wavelength of the emitted light from the active layer, and
  wherein
- the emission-side end surface protective film covers the stripe-shaped waveguide region or an emission-side end surface of resonance.
- 7. (previously presented) The nitride semiconductor laser device according to claim 5, wherein the emission-side end surface protective film includes a fourth end surface protective film having a higher reflectivity for the wavelength of the emitted light from the active layer.
- 8. (previously presented) The nitride semiconductor laser device according to claim 7, wherein each of the first, second, third and fourth end surface protective films has a single-layer or multilayer structure.
- (currently amended) A nitride semiconductor laser device comprising:
   a nitride semiconductor substrate:
  - a nitride semiconductor layer that has an n-type semiconductor layer, an active layer and a p-type semiconductor layer laminated on or above the nitride semiconductor substrate, and has a stripe-shaped waveguide region for laser light; and
  - an emission-side end surface protective film and a rear-side end surface protective film opposed thereto on the end surfaces of resonance sandwiching the waveguide region, wherein

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the nitride semiconductor substrate has a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light,

the rear-side end surface protective film includes a first end surface protective film having a higher reflectivity for the wavelength of the luminescent radiation, and a second end surface protective film having a higher reflectivity for the wavelength of the emitted light from the active layer.

the emission-side end surface protective film includes a third end surface protective film having a higher reflectivity for the wavelength of the luminescent radiation, and

the first and second end surface protective films are laminated so as to at least partially overlap each other, and wherein

the emission-side end surface protective film covers the stripe-shaped waveguide region or an emission-side end surface of resonance.

10. (previously presented) The nitride semiconductor laser device according to claim 8, wherein the third and fourth end surface protective films are laminated so as to at least partially overlap each other.

- 11. (previously presented) The nitride semiconductor laser device according to claim 5, wherein the second end surface protective film is formed in contact with the nitride semiconductor layer.
- 12. (previously presented) The nitride semiconductor laser device according to claim 7, wherein the fourth end surface protective film is formed in contact with the nitride semiconductor layer.
- 13. (currently amended) The nitride semiconductor laser device comprising:
  - a nitride semiconductor substrate;
  - a nitride semiconductor layer that has an n-type semiconductor layer, an active layer and a p-type semiconductor layer laminated on or above the nitride semiconductor substrate, and has a stripe-shaped waveguide region for laser light; and
  - end surface protective films on the both end surface both end surfaces of resonance sandwiching the waveguide region, wherein

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> the nitride semiconductor substrate has a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light,

- at least one of the end surface protective films have has a higher reflectivity for the wavelength of the luminescent radiation from the luminescent radiation region, and
- the luminescent radiation region has a lower dislocation density as compared with the periphery thereof, and wherein
- at least one of the end surface protective film covers the stripe-shaped waveguide region or an emission-side end surface of resonance.
- 14. (currently amended) A nitride semiconductor laser device comprising:
  - a nitride semiconductor substrate;
  - a nitride semiconductor layer that has an n-type semiconductor layer, an active layer and a p-type semiconductor layer laminated on or above the nitride semiconductor substrate, and has a stripe-shaped waveguide region for laser light; and
  - end surface protective films on the both end surface both end surfaces of resonance sandwiching the waveguide region, wherein
  - the nitride semiconductor substrate has a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light,
  - at least one of the end surface protective films have has a higher reflectivity for the
    wavelength of the luminescent radiation from the luminescent radiation region, and
  - the luminescent radiation region has a high impurity concentration as compared with the periphery thereof, and wherein
  - at least one of the end surface protective film covers the stripe-shaped waveguide region or an emission-side end surface of resonance.
- 15. (original) The nitride semiconductor laser device according to claim 14, wherein the impurity is at least one element selected from the group consisting of H, O, C and Si.

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16. (currently amended) A nitride semiconductor laser device comprising:

- a nitride semiconductor substrate;
- a nitride semiconductor layer that has an n-type semiconductor layer, an active layer and a p-type semiconductor layer laminated on or above the nitride semiconductor substrate, and has a stripe-shaped waveguide region for laser light; and
- end surface protective films on the both end surface both end surfaces of resonance sandwiching the waveguide region, wherein
- the nitride semiconductor substrate has a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light.
- at least one of the end surface protective films have has a higher reflectivity for the wavelength of the luminescent radiation from the luminescent radiation region,
- the active layer has a light emission wavelength of 390 to 420 nm, and
- the luminescent radiation has a wavelength of 550 to 600 nm, and wherein
- at least one of the end surface protective film covers the stripe-shaped waveguide region or an emission-side end surface of resonance.

## 17. (canceled)

- 18. (previously presented) The nitride semiconductor laser device according to claim 13, wherein the luminescent radiation region is formed in a stripe shape substantially parallel to the waveguide region.
- 19. (previously presented) The nitride semiconductor laser device according to elaim 18 claim 4, wherein the waveguide region is formed above the luminescent radiation region.
- (currently amended) A nitride semiconductor laser device <u>comprising</u>: a nitride semiconductor substrate;
  - a nitride semiconductor layer that has an n-type semiconductor layer, an active layer and a p-type semiconductor layer laminated on or above the nitride semiconductor substrate, and has a stripe-shaped waveguide region for laser light; and

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end surface protective films on the both end surface both end surfaces of resonance sandwiching the waveguide region, wherein

- the nitride semiconductor substrate has a luminescent radiation region that absorbs light emitted from the active layer and emits luminescent radiation with a wavelength longer than the wavelength of the emitted light,
- at least one of the end surface protective films have has a higher reflectivity for the wavelength of the luminescent radiation from the luminescent radiation region, and
- the waveguide region is formed in a region that is spaced away from the luminescent radiation region, and wherein
- at least one of the end surface protective film covers the stripe-shaped waveguide region or an emission-side end surface of resonance.
- 21. (previously presented) A laser apparatus comprising the nitride semiconductor laser device according to claim 1, and a detector that detect the light emission of the nitride semiconductor laser device, wherein the detector has a spectral sensitivity in a wavelength  $\lambda_{ex}$  of the luminescent radiation higher than a wavelength  $\lambda_{LD}$  of the emitted light of the nitride semiconductor laser device.
- 22. (previously presented) A laser apparatus comprising the nitride semiconductor laser device according to claim 5, and a detector that detect the light emission of the nitride semiconductor laser device, wherein the detector has a spectral sensitivity in a wavelength  $\lambda_{ex}$  of the luminescent radiation higher than a wavelength  $\lambda_{LD}$  of the emitted light of the nitride semiconductor laser device.